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Life-Health Insurance Markets

by

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I. Introduction

The market for insurance in the United States is a collection of submarkets. The most fundamental division in the industry is between the life-health and property-casualty sectors. In general, life and health insurers are distinct from property-casualty firms, although in some cases they are included within a common holding company. The economic environments of the two sectors, and the public policy issues concerning them, are also surprisingly distinct.

This paper provides an economic overview of the life-health sector.[1] As its name implies, this sector also provides a heterogeneous mix of products and services. This includes not only life and health insurance, but also annuities, pension fund management, and other financial services to firms and individuals. Revenues and profitability in these product markets have been changing in different and sometimes dramatic ways, with significant implications for the future prospects of the industry.

The organization of this paper reflects the heterogeneity of the life-health industry. We begin in Section II by presenting information on the size and growth of the industry, in order to illustrate its role within the larger economy. Life insurance and related products such as annuities dominate industry revenues, so much so that constituent firms are often referred to simply as life insurance companies. The central industry issues of increased competition with other financial intermediaries, of asset and interest-rate risk, and consequent insolvency risks for some firms and policyholders, also relate primarily to these products. Thus, in discussing the prospects for the industry, the natural focus is on insurance companies as financial institutions providing life insurance, annuities, and related services.

In comparison to the situation in property-casualty markets, there has been relatively little government regulation of the life insurance market. Firms underwrite contracts using relatively well-known mortality distributions, so that information sharing is less prominent than in property-casualty markets. Rate regulation by state insurance departments is also much less prominent in life insurance, and complaints about collusive industry behavior have been relatively few. An important exception, however, is in the market for accident and health insurance, where state government intervention has been prominent and many proposals for major market reforms are under consideration at the federal level. In Section III we present a brief discussion of health insurance issues and of the role of commercial life-health firms within the health insurance market.

[1]The property-casualty industry is discussed in a companion paper, see Huffman and Bernstein (1992).

II. The Life Insurance Industry

1. Industry Structure and Products

Life insurance companies are most often discussed in the context of their role as financial institutions, rather than from the purely insurance or risk-assumption standpoint. The fact that life insurers manage huge sums of capital, often invested by individuals and pension plans, brings to the fore considerations of company solvency and policyholder protection.[2]

At the end of 1989, there were 2,270 life companies in business in the United States. This represents a recent decline after years of steady increase; the preliminary estimate by the American Council of Life Insurance (ACLI) for year-end 1990 is only 2,200 firms, compared to 1,958 in 1980 and 2,343 in the peak year of 1988.[3] Only a small fraction of these are mutual companies; however, they are generally the older and larger firms, holding 43.9 percent of industry assets in 1990.[4] The industry is not highly concentrated at the national level, and includes firms operating at widely differing scales. In 1990, the largest five firms in terms of total premium income represented only 25.5 percent of the industry total. Prudential of America, the largest, accounted for only 9.1 percent of premium income and 9.5 percent of assets. The Herfindahl concentration index for the industry, computed on the basis of total premium revenue, is only 234, well below the levels commonly associated with significant oligopoly power.[5]

Industry employment growth has recently decelerated. The total number of life and health home-office employees was 19.4 percent higher in 1990 than in 1980, but fell about two percent in 1991 to approximately 790,000. Within this total, life insurance employment peaked in 1986-87, in fact, while health employment has risen steadily. The number of agents, brokers, and service personnel (including property-casualty) rose less than one percent in 1991 after a 42.6 percent increase during the prior decade.[6]

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[2]U.S. Congress (1991), provides a descriptive overview of the life insurance market. The history of the industry, and current public policy concerns, are analyzed by Kopcke and Randall (1991), Wright (1991), and Brannon (1991).

[3]ACLI (1991), p. 53.

[4]The percentage of assets is drawn from A.M. Best (1991a). ACLI (1991) reports that there were 117 mutual life insurance firms at the end of 1989. The relative tax treatment of mutual and stock companies has been a controversial issue in recent years, as discussed in U.S. Treasury Department (1989).

[5]Percentages are calculated from A.M. Best (1991a, 1991e). The Herfindahl index is an upper bound estimated using data for the largest 30 companies.

[6]These are Bureau of Labor Statistics data as reported in ACLI (1991), p. 54.

Table 1
Revenues of Life Insurance Companies, Selected Years ($mil)
(Percentage of Total Revenue in Parentheses)

	Premium Receipts						
Year	Life Insurance	Annuities	Health Insurance	Total	Investment Income	Other	Total
1960	11,998	1,341	4,026	17,365	4,304	1,338	23,007
	(52.1)	(5.8)	(17.5)	(75.5)	(18.7)	(5.8)	(100.0)
1970	21,679	3,721	11,367	36,767	10,144	2,143	49,054
	(44.2)	(7.6)	(23.2)	(75.0)	(20.7)	(4.4)	(100.0)
1980	40,829	22,429	29,366	92,624	33,928	4,336	130,888
	(31.2)	(17.1)	(22.4)	(70.8)	(25.9)	(3.3)	(100.0)
1985	60,127	53,899	41,837	155,867	67,952	10,212	234,027
	(25.7)	(23.0)	(17.9)	(66.6)	(29.0)	(4.4)	(100.0)
1986	66,213	83,712	44,153	194,078	75,435	12,744	282,257
	(23.5)	(29.7)	(15.6)	(68.8)	(26.7)	(4.5)	(100.0)
1987	76,737	88,677	47,549	212,963	82,875	18,460	314,298
	(24.4)	(28.2)	(15.1)	(67.8)	(26.4)	(5.9)	(100.0)
1988	73,531	103,278	52,306	229,115	92,042	16,983	338,140
	(21.7)	(30.5)	(15.5)	(67.8)	(27.2)	(5.0)	(100.0)
1989	73,290	114,997	56,079	244,366	103,965	18,987	367,318
	(20.0)	(31.3)	(15.3)	(66.5)	(28.3)	(5.2)	(100.0)
1990	76,692	129,064	58,254	264,010	111,853	26,337	402,200
	(19.1)	(32.1)	(14.5)	(65.6)	(27.8)	(6.5)	(100.0)

Source: American Council of Life Insurance (1991).
Percentages may not sum to 100.0 due to rounding.

The mix of revenues for U.S. life insurance companies for 1985-90 and selected earlier years is displayed in Table 1. Between 1980 and 1990, total industry revenues increased at an annual rate of 11.9 percent per year, or 6.9 percent annually in constant dollars. These rates are higher than the industry experienced during the 1960s or 1970s, despite the relatively slow growth demonstrated in the table for 1988-90. Life insurance premiums and annuity considerations rose from 3.3 percent of disposable personal income in 1980 to 5.2 percent in 1990.[7] Advance data for 1991, however, indicate a continuation of the trend toward slower premium growth.[8]

[7]The preceding figures are taken from ACLI (1991), p. 37. The National Income and Product Accounts' Implicit Deflator for Personal Consumption Expenditures was used for deflation.

[8]A.M. Best (1992b).

Industry revenue growth has been assisted by tax preferences given to industry products. The investment component of life insurance and annuity contracts benefits from the treatment of "inside buildup," as described, for example, in Taylor (1990) and U.S. Treasury Department (1988, 1989, 1990b). First, accumulated earnings in life and annuity contracts are not taxed until withdrawn, and policy loans can be used to extend this deferral period. Second, the earnings taxed at withdrawal are understated, because they are computed net of the implicit value of term insurance received during the course of the contract. In effect, some of the investment return is received as term insurance, and this in-kind return is exempt from tax. Finally, the investment income incorporated in death benefits is permanently exempted from taxation. The federal revenue loss from the exemption of tax on inside buildup is approximately $8 billion per year.[9]

The subsidy to health insurance is even more significant quantitatively. Employer purchases of health insurance, like other fringe benefits, are not taxable to employees. In fiscal year 1992 this tax expenditure totalled nearly $40 billion in individual income taxes.[10]

Table 1 demonstrates the changing nature of the industry's revenue mix. Despite the fact that it is often referred to as the life insurance industry, life insurance is a relatively minor and sluggish (although still growing) component of revenue. For example, if 1970-90 growth rates continue, health insurance premiums will exceed life insurance premiums by the year 2005. The table shows that premiums are slowly declining as a percentage of total revenue, from 75.0 percent in 1970 to 65.6 percent in 1990. Meanwhile, within the premium receipts category there has been a continuing growth of annuity volume relative to both life and health insurance premiums. Annuities accounted for 10.1 percent of premium receipts in 1970, 24.2 percent in 1980, and 48.9 percent in 1990.[11] The relative importance of investment income has been increasing, and during the 1980s far surpassed the share of life insurance premiums. (This situation contrasts somewhat with the property-casualty insurance industry, which received only $33 billion in investment income in 1990 compared to $218 billion in premium receipts.[12])

The increasing importance of annuities and investment income reflects a number of developments in the roles of life insurance companies and products. Within the category of life insurance itself, there was a secular trend by purchasers toward term insurance from

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[9]U.S. Office of Management and Budget (1992), p. 2-26.

[10]U.S. Office of Management and Budget (1992), p. 2-27. U.S. Treasury Department (1990a) estimates that in fiscal year 1990 this exclusion also reduced Social Security receipts by an estimated $19 billion. Since Social Security benefit payments are a function of taxable earnings, the exclusion of employer-provided health insurance has the effect of reducing Social Security benefits as well as receipts.

[11]The unusually large growth in annuity premiums in 1986 in Table 1 is due to an accounting reclassification of some revenues from reserve adjustments to group annuity considerations.

[12]Insurance Information Institute (1992), pp. 16-19.

the 1950s through the early 1980s, due in part to the low investment returns built into "whole life" policies . Term policies rose from 34 percent of purchase volume in 1955 to 60 percent in 1982, measured by the amount of insurance purchased (term policies make up a smaller proportion of premiums, and of the total number of policies). The introduction of more investment-oriented types of whole life policies in response to the rising interest rates of the 1970s and 1980s helped to reverse the trend, as the share of term insurance fell to 42 percent in 1990. Finally, there has been a recent shift in sales back toward the more traditional types of whole life policies. Nevertheless, as of 1990 universal life insurance (a flexible product in which the policyholder can vary the death benefit and the annual amount of premium payment) accounted for approximately $1.6 trillion of the $5.4 trillion in individual life insurance in force in the United States. Variable life (in which the policyholder pays a fixed annual premium but can control the allocation of the investment portion of his premiums, and receives a return that varies with the performance of the underlying assets) and flexible premium variable or universal-variable life (which combines the characteristics of the two forms by allowing the premium and the investment allocation to vary) policies comprised another $166 billion.[13]

Group life insurance is commonly provided as a fringe benefit to employees, and is primarily of the term variety. In 1990, it accounted for 18.6 percent of life insurance premiums, and 40.0 percent of the approximately $9.4 trillion of life insurance in force. Aside from individual and group policies, between three and four percent of life insurance premiums were in the remaining categories of credit (for example, mortgagor) and industrial life insurance.

Annuities can also be disaggregated into individual and group policies. Annuities are purchased by individuals as a device for smoothing income during retirement, and as a means of generating tax-deferred income. The bulk of annuity revenue, however, derives from purchases by pension plans. There are several means by which life insurance firms and pension funds can structure plan benefits. For example, pension contributions can be used to purchase individual annuities for all plan participants; this would be referred to as an "allocated" funding instrument because the insurer's obligations are to individual employees. Alternatively, contributions can be pooled and used to purchase a single "unallocated" group annuity. More than 58 percent of the $129 billion of annuity premiums in 1990 shown in Table 1 were for group annuities. The life insurance company can also simply act as the administrator of the pension plan, receiving fees which appear as Other income in Table 1, or can manage and insure pension funds received from the plan sponsor.

Life insurance companies can also act as financial intermediaries by issuing secondary securities to pension plans. An increasingly popular example is the guaranteed investment contract (GIC), included within the annuity category in Table 1. These are financial contracts in which the issuer guarantees a fixed rate of return over the life of the contract,

[13]ACLI (1991), p. 14.

commonly three to seven years. Most GICs are issued by insurance companies, and the primary purchasers are pension plans; they are especially popular with defined-contribution plans seeking safe, stable returns.[14] GICs have recently been the subject of much discussion and controversy as a consequence of their rapid growth, the riskiness of the assets used to support them, and their possible effects on the overall safety of pension fund portfolios.

2. Efficiency and Economies of Scale

The efficiency of the life insurance industry in providing life and annuity products has been difficult to evaluate, due to fundamental problems of price and output measurement.[15] There is a conceptual issue of defining the outputs of a life insurance firm, and the price per output unit. In addition, the generally available financial data sources do not provide the ideal amount of product and cost detail at either the firm or industry level. For example, ACLI (1991) and A.M. Best (1991a) report benefits, premiums, and reserves separately for individual, group, credit, and industrial life insurance, whereas a breakdown into term, straight, universal, and variable life would be more convenient for many analytical purposes.

The dispersion of life insurance prices across policies and firms is an important issue for the evaluation of competitive forces in the industry. A number of early studies addressed the issue of life insurance price measurement, in part for the purpose of determining the price indicator that would best facilitate comparison shopping by consumers. These studies identified variations in the price of insurance of up to 170 percent, and took this as evidence that price competition was lacking. Winter (1981) strongly contradicts these results by introducing the concept of the "adjusted premium." A policy's adjusted premium is the hypothetical premium of that policy if it had the same retention (i.e., present value of premiums less benefits) but provided expected benefits equal to the mean of all policies observed in the market. Winter derives an estimated market dispersion of only 3.6 percent in terms of adjusted premiums, and argues that even this is an overestimate due to measurement error (in policy and policyholder characteristics) and other factors. It is important to note that calculations such as Winter's rest in part on the conceptual decision regarding whether the price of insurance should include only the loading charge for risk-bearing, or whether it should incorporate the expected value of the benefit returned. Under the latter definition, as used by Winter, the price will be larger and the percentage dispersion smaller.

One recent attempt to construct price and real output series for the industry, presented in Reece (1992), is based on a model of the life insurance firm as a provider of financial services. The flow of these services is assumed to be proportional to the level of life

[14]See, for example, U.S. Congress (1991).

[15]Pricing and scale economies in health insurance are discussed in the next section.

insurance in force measured in 1976 dollars; annuities, accident and health insurance, and other services were excluded from the analysis. Reece estimates that over the 1976-89 period studied the output price of life insurance (roughly, the cost per real dollar of coverage) fell by approximately four percent, and real output rose 150 percent.

Kellner and Mathewson (1983) is an example of a study that examines the importance of economies of scale in the life insurance industry. Based on cost function parameters estimated using data from Canadian-owned firms in 1961, 1966, 1971, and 1976, the authors find no evidence that life insurance is a natural monopoly; the results fail to reject decreasing returns to scale in each year. Economies of scope — i.e., economies achieved by offering a mix of the four product lines of individual and group life insurance and annuities — were identified only in years prior to 1976. Thus, the results are consistent with a zero-profit industry equilibrium with price equal to marginal cost, requiring no regulation of excess monopoly profits.[16] Kellner and Mathewson also note that their results are consistent with the existence of a large and growing number of life insurance firms (in both the United States and Canada) of widely different sizes. Nevertheless, limitations of theory and data remain a problem for empirical research in this field.[17]

3. Financial Stability

At least at the present time, the crucial issues for the life insurance industry are that of financial stability and solvency. These issues can be addressed from the standpoints of asset composition, liabilities and surplus, and profitability. Table 2 displays the aggregate year-end values of life insurance company assets corresponding to the years in Table 1, along with the percentage distributions by asset class. The accelerating expansion of the industry in the 1980s is again evident. The growth rates of total assets for 1960-70, 1970-80, and 1980-90 are 5.7, 8.7, and 11.4 percent per year, respectively, and advance 1991 data indicate another 11.7 percent growth.[18] However, the safety and liquidity of these assets have recently been been called into question.

Because commercial banks and thrift institutions have experienced serious asset quality problems, necessitating government intervention to protect depositors, the composition of the life insurance industry portfolio has often been discussed in relation to the asset holdings of those other financial sectors.[19] One major distinction is that the largest component of life insurance lending is the 41.4 percent in corporate bonds, whereas commercial banks

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[16]Analyses of efficiency and economies of scale in health insurance are discussed in Section III.

[17]Other issues addressed in the empirical life insurance literature include the relative cost structure of agency and nonagency firms (Harrington 1982), the efficiency of stock and mutual companies (Boose 1990), and the relationship between firm size and receptivity to new technology (Globerman 1986).

[18]A.M. Best (1992b).

[19]See, for example, Kramer (1991) and U.S. Congress (1991).

Table 2
Distribution of Assets of U.S. Life Insurance Companies
Selected Years

Year	Total Assets ($mil)	Percentage of Total						
		Govt. Secur.	Corp. Bonds	Corp. Stocks	Mortgs.	Real Estate	Policy Loans	Misc.
1960	$119,576	9.9	39.1	4.2	34.9	3.1	4.4	4.4
1970	$207,254	5.3	35.3	7.4	35.9	3.0	7.8	5.3
1980	$479,210	6.9	37.5	9.9	27.4	3.1	8.6	6.6
1985	$825,901	15.0	36.0	9.4	20.8	3.5	6.6	8.7
1986	$937,551	15.4	36.5	9.7	20.6	3.4	5.8	8.6
1987	$1,044,459	14.5	38.8	9.3	20.4	3.3	5.1	8.6
1988	$1,166,870	13.7	41.2	8.9	20.0	3.2	4.6	8.4
1989	$1,299,756	13.7	41.4	9.7	19.5	3.1	4.4	8.2
1990	$1,408,208	15.0	41.4	9.1	19.2	3.1	4.4	7.8

Source: American Council of Life Insurance (1991).

hold a similar percentage of their assets in the categories of bank loans and commercial credit, and thrifts are, of course, concentrated in mortgage lending. Corporate and foreign bonds together account for only about three percent of commercial bank assets.[20] Second, corporate equities (including mutual funds) comprise 9.1 percent of life insurance company assets but only about 0.2 percent of the portfolios of banks, whose investments in these equities are restricted by law. A sizeable proportion of life insurers' equity assets are held in the "separate accounts" of life insurers that support variable life insurance and other contracts in which the return to the policyholder is not guaranteed. As reported by A.M. Best (1991a, p. 23), in 1990 separate accounts comprised 11.4 percent of industry assets, and 43.5 percent of separate account investments were in common and preferred stock. The assets in separate accounts are not allocated to support the general liabilities of the firm. (By the same token, the policies supported by special account assets may be more insulated from potential insolvencies in the firm's general account.)

Life insurance companies, like banks, are major investors in residential and nonresidential mortgages. However, while banks have been increasing their holdings of real-estate-backed loans, Table 2 shows that since 1970 life insurers have been moving in the opposite direction. Certainly the life insurance industry is more insulated from further

[20]Board of Governors of the Federal Reserve System (1992). A significant proportion of insurers' bond holdings are private placements, which are similar in some respects to bank loans.

declines in real estate values than the thrift industry, for example. On the other hand, the overwhelming majority of mortgages held by life insurers are in the presumably more volatile commercial category. Standard & Poor (1991) notes that these commercial mortgages, with 5-7 year terms and little principal amortization, have increasingly been used to support GIC liabilities. The inability of some borrowers to meet the balloon payments due at maturity poses a threat to some insurers and has placed a strain on the GIC market.

Since the failure of the Executive Life company, which had invested heavily in the "junk market," concern has been focused on the industry's holdings of below-investment-grade bonds.[21] There is no commonly accepted series on junk bond assets, due to the scarcity of detailed data on holdings and also because of variations in bond classifications and valuations. ACLI (1990a) reports that these bonds made up only 4.6 percent of general account assets as of the end of 1989. Whereas Kramer (1991, p. 43) reports that below-investment-grade bonds fell from 4.5 percent of assets in 1987 to 3.9 percent in 1989, Joseph Belth, editor of *The Insurance Forum*, gives a figure of 6.7 percent for 1990.[22] Based on an industry survey by Standard & Poor, high-yield bonds rated below BBB made up eight percent of total assets and 124 percent of surplus in the first quarter of 1991, with "about a dozen" firms having "aggressive" high-yield holdings of more than two times statutory surplus. The Standard & Poor survey excluded Executive Life and three other firms whose holdings exceeded 10 times surplus.[23] Marmol and Shuck (1991) cite a Conning and Co. estimate that junk bonds comprise 4.8 percent of industry assets and 59 percent of surplus. Finally, Kramer (1991, p. 79) estimates that 159 life insurance companies had below-investment-grade bonds equivalent to 100 percent or more of net worth. The extent to which this represents a problem for the industry as a whole depends on a number of factors about which little is known with precision — the concentrations of particular firms' holdings in particular issues, the success of insurers' recent efforts to reduce their exposure, and the future default rates on below-investment-grade bonds.

Other, smaller asset categories are also possible areas of concern. Among these are real estate (largely home offices and foreclosed properties) and affiliate investments. The latter, included in Table 2 under miscellaneous assets, are often investments in non-insurance subsidiaries such as brokerages and mutual funds.[24] There are questions surrounding both the values and the riskiness of these subsidiaries, although Standard & Poor (1991) suggests that the situation with respect to affiliate investments may be improving. As with commercial mortgages and junk bonds, the importance of this issue varies widely across

[21]A French investment group, led by Altus Finance and Mutuelle Assurance des Artisanale de France, was approved to purchase Executive Life and to finance a successor company.

[22]Reported in King (1991a), p. 7.

[23]Standard & Poor (1991, p. IND-34).

[24]See, for example, Standard & Poor (1991) and IDS Financial Services (1990), p. 23.

firms.

Figure 1
Net Worth as a Percentage of Assets

Source: ACLI (1991).

The issue of asset safety tends to appear more threatening when viewed in relation to total industry net worth than in relation to total assets. Figure 1 charts industry net worth (surplus plus capital of stock companies) as a proportion of assets. As the figure demonstrates, this ratio declined over the last two decades, causing some concern for industry analysts. The value of 6.5 percent in 1990 reflects two years of small increases, but was low compared to the 1970-90 period as a whole. Unfortunately, the changes in the nature of the business make intertemporal comparisons of safety difficult. Capital requirements are generally considered to be lower for annuities, the most rapidly growing product line, than for life insurance. Furthermore, balance sheets are complicated by affiliate investments and by the increasing role of separate accounts for assets corresponding to particular liabilities. More intensive analysis than displayed in Figure 1 would be needed to draw conclusions about the adequacy of industry capital. On the other hand, there appears to be a consensus in the industry that capital ratios need to be improved. The decision by Equitable Life to move to a stock rather than mutual organization is motivated at least in part by the desire to facilitate the acquisition of new capital. Standard & Poor

(1991) indicates that other mutual companies are considering public offerings and demutualization, while other firms are addressing capital adequacy through mergers and asset sales.

Finally, the adequacy of a firm's capital must be considered in the context of the relationship between its asset and liability portfolios. One component of risk to an insurance company is asset/liability or interest-rate risk; if liabilities have shorter duration than assets, increases in interest rates can significantly reduce earnings. IDS Financial Services (1990) argues that asset/liability risk, along with investment risk (i.e., asset quality and liquidity), is more important to major life insurers than the insurance risk arising from the unpredictability of mortality and health claims. That report (written as the threat to Executive Life was becoming apparent) also conjectures that asset/liability risk is unlikely to trigger a major insolvency. However, potential duration mismatches could be of considerable significance in the future, particularly if interest rates rise sharply.

Table 3 and Figure 2 address trends in industry profitability for the years 1977-90. The columns of the table show the net gains from operations (i.e., after taxes but before capital gains) from each of the major product lines. Total income surged by almost 30 percent in 1990 after large increases in 1988-89, indicating little deterioration in aggregate industry performance. Although the profitability of each line increased in 1990, the historical patterns have been distinct:

- As was seen for premiums in Table 1, profits from life insurance have experienced growth that is relatively slow and stable in comparison to the other lines. The greater role of life insurance in net income than in premium revenue is consistent with the common assertion that life insurance has wider profit margins than other industry products.

- Annuity profits were dramatically higher in 1987-90, after a long period of small or negative net gains. To some degree, accounting practices distort the actual trend in underlying profitability. Costs of sale are typically allocated to the initial year of a contract, suppressing measured profits during a period of rapid growth.

- Accident and Health profits display the "insurance cycle" typical of property-casualty insurance. Profits were positive in 1983-86 and again in 1989-90.

- "Other" profits rose 1,286 percent between 1977 and 1990. These are primarily investment returns on assets that are not allocated to reserves for a particular product line.

The apparent cyclicality of accident and health profits is perhaps the most striking result displayed in Figure 2. Most of the year-to-year fluctuation in total industry profits can, in fact, be explained by the health insurance business. Increasingly, life insurance companies are acting as administrators of health plans for self-insuring companies, rather than assuming

Table 3
Net Gain From Operations, By Line
Selected Years ($000)

Year	Product Line				
	Total Life	Annuities	Accident & Health	Other	Total
1977	2,832,368	-99,483	508,207	146,895	3,387,987
1978	3,111,982	83,384	854,051	192,674	4,242,091
1979	3,555,851	157,546	783,134	324,918	4,821,449
1980	4,295,235	173,450	232,389	384,014	5,085,088
1981	4,881,628	-395,923	-203,023	405,253	4,687,935
1982	4,566,994	-545,367	235,539	451,262	4,708,428
1983	4,199,049	-831,022	1,015,249	408,012	4,791,288
1984	4,517,450	-253,341	2,083,266	553,835	6,901,210
1985	4,355,055	-181,072	2,272,949	763,859	7,210,791
1986	4,560,098	41,955	1,287,016	825,145	6,714,214
1987	5,097,025	614,640	-284,798	700,233	6,127,100
1988	5,172,762	2,136,026	-119,077	815,664	8,005,375
1989	5,517,606	2,329,158	1,548,417	1,138,742	10,533,923
1990	6,401,279	2,879,069	2,324,865	2,037,057	13,642,270

Source: A.M. Best (1991a).

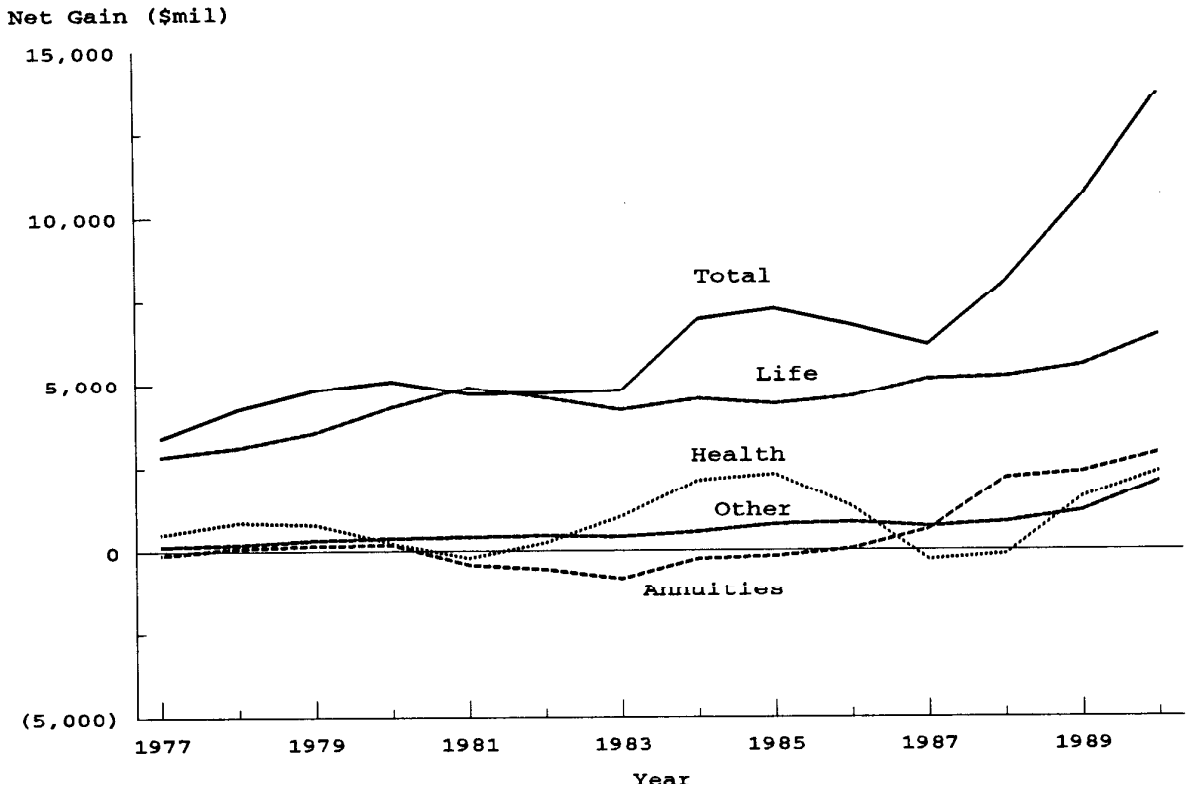
the risk themselves (see Section III below). This should have the effect of smoothing, but also possibly reducing, profits from this source.

Figure 3 charts the patterns of after-tax profit as a percentage of previous year's (book) equity, both before and after realized capital gains. The figure shows evidence of a general decline in operating profits from the late 1970s to the mid-1980s, but a subsequent rebound to the highest level in a decade in 1990. Preliminary data indicate a slight decrease in the return on equity in 1991.[25] The importance of capital gains income is also demonstrated in the figure.[26] Like the operating return, these capital gains are on a nominal basis.

[25]A.M. Best (1992b), p. 17.

[26]The 1986 Tax Reform Act changed the corporate tax rate on capital gains from 28 to 34 percent beginning in 1987. The large value of realized gains in 1986 was partially in response to this anticipated tax increase.

Figure 2
Net Gain From Operations, By Line

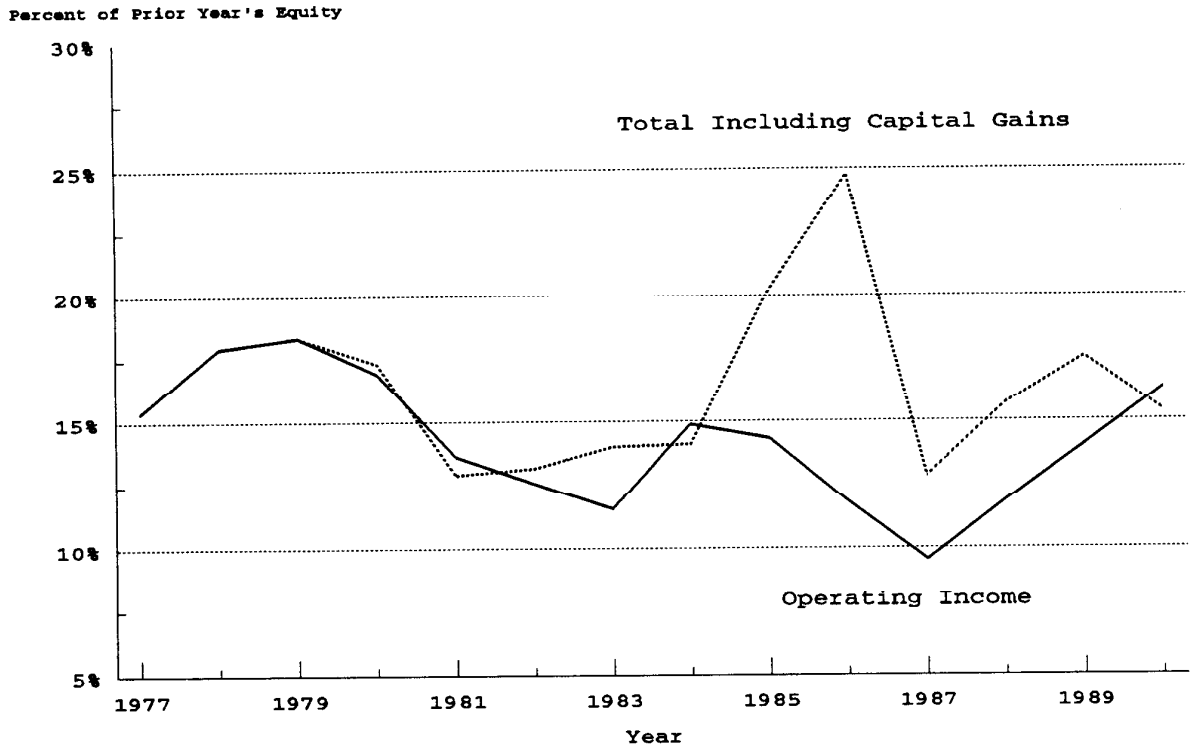


Source: A.M. Best (1985, 1991a).

Correcting for the effects of inflation would enhance the recent rates of return relative to those of the late 1970s and early 1980s. These rates of return are also net of dividends to stockholders, which are treated as costs on insurance company income statements but should at least partially reflect a return to equity investment. Once again, the picture is given of an industry that is going through a relatively stressful period, but that is not losing money in the aggregate. Kramer (1991, p. 34) estimates that the weakest quintile of the industry had a negative return on net worth of -2.8 percent during 1987-89 (compared to -16.6 percent for the weakest quintile in commercial banking), but earned money as a group in 1989.

Given divergent trends in component revenues and profits, the prospects for life insurers will depend on their revenue mix. Some firms offer a wide range of products, while others, including some of the largest, are highly concentrated in one line. For example, the two companies with the largest market shares in individual annuities are Prudential, also the largest firm in the industry as a whole, and Teachers Insurance and Annuity, for which

Figure 3
After Tax Return to Equity



Source: A.M. Best (1985,1991a), ACLI (1991).
Capital gains data not available until 1980.

individual annuities provided well over 90 percent of total premium revenue. Similarly, six of the top ten accident and health insurers were also among the ten largest firms in the aggregate industry, while two others (American Family Life and Health Care Services) were focused in the health insurance sector. Concentration ratios tend to be somewhat higher in submarkets, indicating that adverse developments would hurt some firms more than others. In group annuities, for example, seven firms accounted for more than half of premium revenue in 1990, and Prudential has almost 23 percent of the GIC market.[27]

In the event of insurer failures, most individual and commercial policyholders are protected by a state-level guaranty fund system, under which insurers can be assessed *ex post* to cover the difference between assets and liabilities. Guaranty fund laws were adopted in response to calls for an increased federal role during a period of industry stress in the late

[27]Results in this paragraph are from A.M. Best (1991b, 1991c, 1991d). The levels of concentration in submarkets do not appear to be a cause for concern. For example, the Herfindahl concentration index for group annuities, estimated using the twenty largest companies, is a relatively low 553.

1960s, and recently there have been renewed proposals to federalize or otherwise modify the present system, in order to standardize the provisions of the funds or to improve their collective capacity for dealing with a major insolvency.[28] An important issue in this regard concerns the extent of coverage. State funds differ in such features as deductibles, maximum claim amounts, insurer assessment limits, and the degree to which assessments can be recouped through reductions in state premium taxes. Perhaps more significantly, many guaranty funds do not cover GICs and other unallocated funding obligations typically used in defined-contribution pension plans.[29]

Resolving the issue of life insurer solvency amounts to forecasting the future course of premium receipts, investment returns, and asset quality, further complicated by the need to focus on individual firms rather than the industry mean.[30] Certainly, the recent insolvency experience is cause for concern. Although guaranty fund assessments have almost always been far below those on the property-casualty side of the industry, both life and health fund assessments rose dramatically during the last decade, as shown in Figure 4. The health fund assessments in 1989 and 1990 are a lagged response to the weak market of the mid- to late-1980s. The life and annuity assessments, on the other hand, will be dwarfed by the results of the 1991 insolvencies. The assets of financially impaired life/health companies represented 3.18 percent of industry assets in 1991, compared to the previous high of 0.78 percent in 1983.[31] A recent report by the ACLI concludes that "no widespread deterioration in the solidity and solvency of the life insurance business exists."[32] Nevertheless, the 1991 failure of Executive Life alone may cost the guaranty system $1.9 billion, and A.M. Best (1992a) estimates the remaining future cost to guaranty funds of 1976-1991 life/health failures at $4.2 billion.

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[28]Issues in guaranty fund design are discussed by Stewart Economics, Inc. (1990), Cummins (1988), and Harrington (1991). King (1991c) and Rappaport (1992) summarize recent legislative proposals in this area.

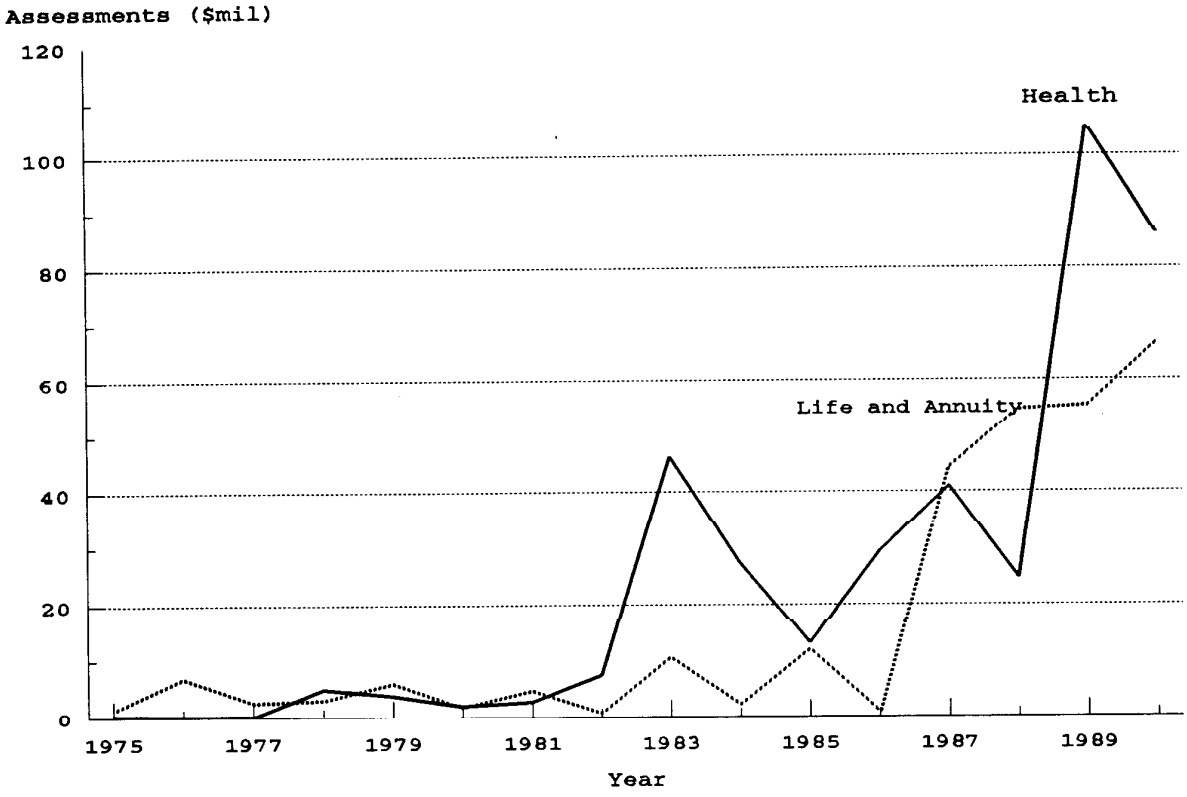
[29]As discussed by Schmitt (1992), the Pension Benefit Guaranty Corporation, which insures defined-benefit pension plans, excludes from coverage annuity contracts purchased by pensions. King (1991b) also discusses this issue, and provides a summary of state life-health and property-casualty guaranty fund coverages.

[30]IDS Financial Services (1990) presents results of a pessimistic simulation study of the potential extent of industry insolvencies. The academic literature contains a number of sophisticated statistical models for predicting company solvency. A recent example is BarNiv and Hershbarger (1990).

[31]A.M. Best (1992a).

[32]ACLI (1990b), p. 17.

Figure 4
Guaranty Fund Assessments, By Account



Source: NOLHGA (1991).

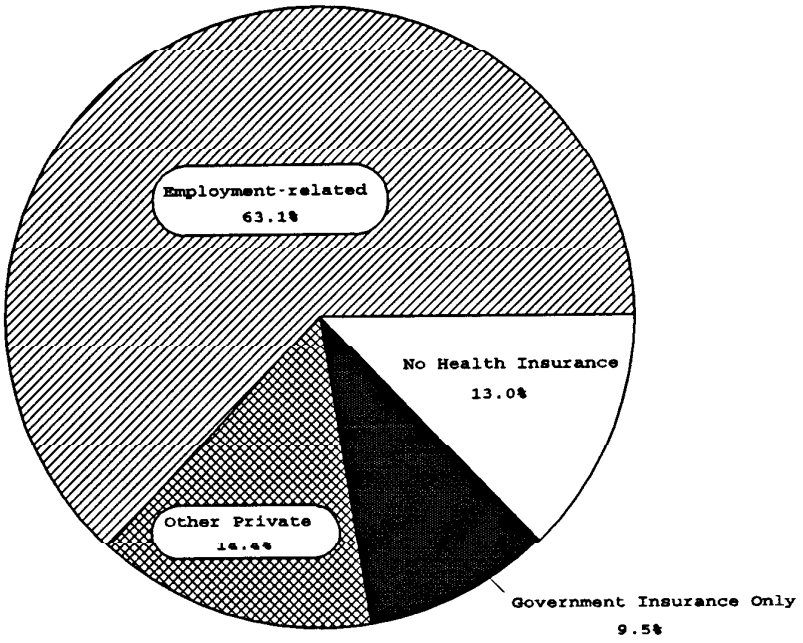
III. Health Insurance

1. Industry Structure

In the provision of accident and health insurance services, life-health insurance companies are part of a larger industry that also includes the nonprofit Blue Cross/Blue Shield plans as well as large federal and state health care financing systems. This sector is characterized by a much greater degree of government regulation than is present in life insurance or annuity markets. For these reasons, the structure and performance of private insurance firms in the health care market deserves special emphasis. The purpose of this section is to provide background that may be useful in judging the overall strength of the industry. We first provide a sketch of the health insurance market as a whole, and then discuss several issues related directly to structure and performance.

Private, employment-related group plans are the predominant form of health insurance coverage for the U. S. population. Over 63 percent of the population get their health

Figure 5
Sources of Private Health Insurance Coverage
Percent of Total Population, Fourth Quarter 1988



Source: Nelson and Short (1990)

insurance coverage in this form; another 14 percent purchase other private health insurance (Figure 5). For persons under age 65, the percentages are 67 percent and 10 percent for the private group and non-group plans, respectively (Nelson and Short, 1990).[33]

Four broad types of health insurance suppliers can be identified: commercial (stock and mutual) insurance firms, which are the focus of this paper; not-for-profit Blue Cross and Blue Shield (BCBS) plans; Health Maintenance Organizations (HMO), Preferred Provider Organizations (PPO) and other independent plans; and self-insured plans. The insurance market is not expanding as rapidly as in the past. Between 1945 and 1960, the percentage of the population with private health insurance increased from 23 percent to 67 percent. In 1989, 77 percent of the population had private health insurance coverage. The increased competition from newer forms of providers makes it more difficult for all insurers to add to enrollments. Overall premiums in this market showed uneven growth in the 1980s, with increasing shares for the self-insured and HMO plans and declining shares for the BCBS and commercial plans (Table 4).

[33]Public funds represent a very important source of financing for health care services. Of the $666 billion in expenditures for health care in 1990, $283 billion derived from government programs, primarily Medicare and Medicaid.

Table 4
Private Health Insurance Industry Total Premiums, Premium Growth, Premium Shares, and Benefit/Premium Ratios

Year	Total Premiums[1]	Premium Growth[2]	Premium Shares (percent)			Benefits/ Premiums
			Self-Insured & HMOs	Blue Cross Blue Shield	Commercial Plans	
1960	$ 24.3	9.0	na	37	63	.76
1965	35.8	8.1	na	40	60	.79
1970	50.0	6.9	na	40	60	.82
1975	62.4	4.5	na	48	52	.87
1980	98.8	9.6	20	31	49	.90
1981	101.2	2.4	21	32	47	.90
1982	109.5	8.2	21	31	48	.89
1983	115.4	5.4	21	31	48	.87
1984	118.5	2.7	23	31	46	.84
1984	125.9	6.2	26	30	44	.84
1986	126.0	0.2	28	30	42	.90
1987	142.3	13.0	36	28	36	.91
1988	156.6	10.0	37	27	36	.90
1989	170.7	9.0	41	26	33	.86

[1]Billions of 1982 dollars.

[2]Between 1960 and 1980, the figures are average annual percentage changes over the previous five years.

Source: HIAA, 1991.

Most large and many medium-sized firms self-insure, thereby avoiding state premium taxes (2-3 percent of premiums), state-mandated benefit laws, state laws regarding capital and reserve requirements, participation in state risk pools, reliance on insurance carriers to organize information, and prospective payment of premiums (Jensen and Gabel, 1988). Between 1974 and 1990, the percentage of employees who were covered by self-insured firms increased from 5 percent to 56 percent (U.S. General Accounting Office, 1991). Administration of employer self-insurance type plans now accounts for about 54 percent of total commercial health insurance revenues (Health Insurance Association of America (HIAA), 1991).

HMOs, PPOs, and other managed care plans have grown rapidly in recent years, largely in response to rising health care costs. Enrollment in HMOs increased from 4 percent of

the population in 1980 to over 13 percent in 1990; the number of PPOs rose from under 30 in 1980 to 798 in 1990 (HIAA, 1991). The growth in these types of plans is generally viewed as a positive development for a more competitive health insurance market (Frech, 1988a, and Frech and Ginsburg, 1988).

Some additional salient facts:[34]

- Life insurance companies account for the vast majority of commercial health insurance business; a small amount is written by property/casualty companies. Consequently, as noted above, solvency concerns for the commercial firms are joint life-health issues. Virtually all health-insurance-only companies are Blue Cross/Blue Shield affiliates.

- Although states regulate insurance companies, the Federal Government regulates HMOs and health benefit plans offered by employers.

- State regulation of commercial companies focuses on financial stability, marketing practices, and policy forms, and pays little attention to underwriting and rating issues. Rate approval is rarely required, though some states have a benefit/premium ratio requirement (usually only for individual coverage).

- In most states, Blue Cross/Blue Shield plans operate under special legislation that exempts them from solvency standards and premium taxes. The Blues face somewhat more stringent regulation on rates and underwriting practices. The Blues' large share of some markets has raised antitrust concerns.

- A major concern for policymakers in the health insurance area is access. A number of recent proposals would spread the population coverage of health insurance, but would also involve greatly increased government regulation. The access issue in health insurance is not addressed in this paper.

2. Some Evidence on Structure and Performance

The health insurance industry is considered to be largely competitive. A large number of firms sell health insurance, ranging from nationwide companies to small locally-based firms. The self-insurance option represents the principal limitation to market power. Attempts to raise prices above competitive levels, for example, can cause group customers to self-insure.

Entry into the health insurance industry has not been investigated in the literature. Entry into the insurance industry generally is relatively easy. The commercial segment is relatively unconcentrated and capital and filing requirements are minimal for health

[34]The middle three facts are described in U. S. Congress (1990).

insurance.[35] Finally, the demand for information-sharing is far lower in the health area than in the property/casualty lines since group rating experience generally satisfies the need for actuarial data.

Nevertheless, the health insurance industry has significant noncompetitive elements and regulatory policies that distinguish it from other industries.[36] These issues are discussed further below.

Pricing. The pricing of health insurance policies gives some indication of competitiveness on the demand side of the market. One measure of price for health insurance is the benefit/premium ratio. The difference between benefits and premiums goes to administration, marketing, and profits. The final column in Table 4 shows that the benefit/premium ratio increased steadily over the 1960s and 1970s and levelled off at about 90 percent for most of the 1980s. Sindelar (1988) analyzed the constant benefit/premium ratios for the Blues (about 90 percent) and declining ratios for commercial firms over the period 1959 to 1979 but was unable to provide an explanation for why the two series behaved differently. Feldstein (1988) examined benefit/premium ratios for the period 1955 to 1984 and concluded that the behavior of the ratio was what could be expected for a relatively price-competitive health insurance industry.

Scale Economies. Few studies have examined the extent of economies of scale in the health insurance industry. Blair, Jackson, and Vogel (1975) discovered considerable scale economies in the administration of commercial health insurance. A follow-up study (Blair and Vogel, 1978) also found the existence of scale economies but much less extensive than in the earlier study. Feldstein (1988) concluded that significant economies of scale occur in the administration of commercial health insurance. Yet, Pauly (1988c, p. 269) cautions that "the presence of small firms in the commercial markets suggests that the existence of economies of scale in health insurance is not a foregone conclusion." This is a topic that requires further investigation.

Market Power. One indicator of market power is the market share held by one or a few dominant sellers.[37] Table 4 shows a declining, though sizeable, overall market share for the Blues. The share varies considerably across States, however, and the Blues typically have the largest share in any State. In 1980, the Blue Shield (physician services' coverage) market share, measured with respect to the population with private health insurance, ranged

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[35]Munch and Smallwood (1980) found that raising capital reserve requirements has a deterrent effect on entry into the property/casualty industry.

[36]As is the case for life insurance, a major obstacle to an examination of the structure and performance of the health insurance industry is the absence of a well-formulated and accepted economic model of insurance products and markets.

[37]Market share is not sufficient for market power. Ease of entry and availability of close product substitutes also affect market power.

from 23 percent in California to 64 percent in Massachusetts (Pauly, 1988c).

The magnitude of the Blues' market shares raises concerns about the source of the large shares and whether they have anticompetitive effects. The situation here is more complex than in other markets. Many Blue plans arrange significant discounts with participating providers, and the magnitude of the discounts varies directly with market share (Frech, 1988b). The Blue plans may possess an effective source of *monopsony* power over the purchase of its inputs (provider services) that, in turn, acts as a sustaining source of market share. The monopsony power could result in anticompetitive distortions with the costs borne mainly by providers (doctors, nurses, etc.).[38] In addition, if such monopsonistic control is used to bolster its discount-enforcing power (a ban on "balance-billing", for example), substantial marketing advantages could result that lead to expanded first-dollar insurance coverage and increased demand for medical care (Frech, 1988b). The existence of this market power has not been established empirically, however.[39]

The sources of initial market share for the Blues have not been conclusively identified, although the tax and regulatory advantages are generally viewed as providing unwarranted competitive advantages to this segment of the market. This view was supported in the Tax Reform Act of 1986, which curtailed the exemption of the Blues from Federal income taxation and generally made them subject to tax as stock property-casualty insurance companies.

Financial Stability of Blue Cross/Blue Shield. Figure 6 illustrates the financial performance of BCBS during the 1980s. Reflecting the nature of the product, the ratio of net worth to total assets is similar to that maintained by property-casualty insurers, but high in comparison to the life-health industry ratios displayed in Figure 1 above. Substantial swings in this ratio occurred during the 1980s, reflecting the parallel year-to-year changes in net gains shown in the figure. The net gain/loss pattern depicted is also similar to the pattern of accident and health insurance operating gains for commercial firms shown in Figure 2 and Table 3.

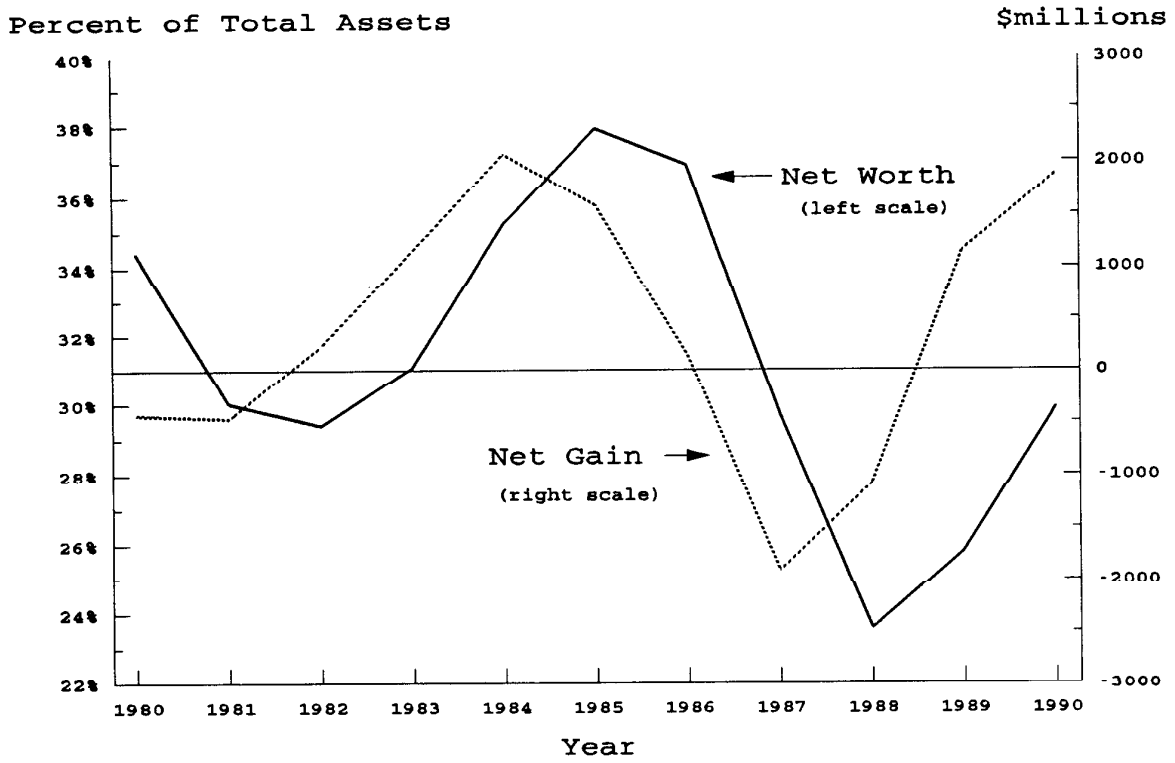
IV. Summary

For the life-health industry, issues of oligopolistic pricing, access, and affordability have been overshadowed recently by the solvency question. In increasing competition with other financial institutions, and subsidized by important tax preferences, the industry has seen

[38]For an exchange on this issue, see Pauly (1987, 1988a, 1988b) and Staten, Dunkelberg, and Umbeck (1987, 1988).

[39]Pauly (1988c) reviews several studies that referred to the 1970s and notes that no study has examined the changes over time in market share across areas.

Figure 6
Blue Cross/Blue Shield Net Worth and Net Gain, 1980-1990



Source: Blue Cross and Blue Shield Association.

aggregate revenues and profits grow rapidly, but company failures have turned from a minor concern to the subject of potential regulatory intervention. Many observers have called for an increased federal role in order to avoid the potential weaknesses of the current fragmented system of financial regulation and solvency guarantees. Solvency risks in this industry mirror those in other financial sectors,[40] and common solutions, which are beyond the scope of this paper, should be sought.

Health insurance is a rapidly growing component of revenue and has been largely responsible for profit fluctuations in the life-health insurance industry. Proposed market reforms in this area could dramatically alter the way in which health insurance is provided as well as the financial conditions of this product line. An enhanced federal role may emerge that could further expand the size of the market while simultaneously threatening

[40]U.S. Treasury Department (1991) discusses these issues in detail in the banking context.

preemption of the private role. The health insurance industry requires further study, and the extensive literature on moral hazard and cost control in this area has lessons for the rest of the life industry as well as for property-casualty insurers.

The life-health industry thus has entered a period of considerable uncertainty. The ongoing dramatic changes in the nature of the market are likely to be irreversible, and some consolidations within the industry may result. The role of public policy must be to protect policyholders from the insolvency threat during this period of transition and stress, while maintaining the competitive vitality of the industry.

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